

**REMARKS**

The Office Action mailed April 11, 2008, has been received and reviewed. Claims 1-6, 8 and 11-15 are currently pending in the application. Claims 1-6, 8 and 11-15 stand rejected. Applicants respectfully request reconsideration of the application in light of the arguments presented herein.

**35 U.S.C. § 103(a) Obviousness Rejections**

Obviousness Rejection Based on U.S. Patent No. 4,504,532 to Herring in view of U.S. Patent No. 5,744,075 to Klett et al.

Claims 1-6, 8 and 11-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring (U.S. Patent No. 4,504,532) in view of Klett *et al.* (U.S. Patent No. 5,744,075). Applicants respectfully traverse this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, the Examiner must determine whether there is “an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Further, rejections on obviousness grounds “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id* at 1741, quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006). Finally, to establish a *prima facie* case of obviousness, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

Herring teaches phenolic insulators for blast tubes of rocket motors. *Herring*, at the Abstract. The blast tubes are “positioned between the nozzle and propellant section of tactical

rocket motors when the nozzle is not connected directly to the rocket motor in missile design.” *Id.*, at col. 1, lines 23-26. The blast tubes include blast tube insulators that “must have thermal properties, including char rates, which are consistent with its high temperature, erosive environment.” *Id.*, at col. 1, lines 32-35. In order to produce blast tube insulators with the desired thermal properties, Herring attempts to “reduce[ ] the density of the [blast tube] insulator while maintaining acceptable char rates. *Id.*, at col. 1, lines 45-47. The densities of the blast tube insulators are “between about 0.050 and 0.057 pounds per cubic inch.” *Id.*, at col. 2, line 3-6. As noted by the Examiner, this density range corresponds to 1.38-1.57 g/ml. (*Office Action* mailed April 11, 2008, page 3).

Klett teaches methods of making densified carbon matrix carbon fiber composite preforms used as friction materials in aircraft braking systems. *Klett*, at col. 1, lines 12-14 and 18-20. Klett is interested in making carbon matrix carbon fiber composite preforms that have an increased density. Method A of Klett uses resin powder to produce preforms of about 0.5 g/cc to about 1.3 g/cc. *Id.*, at col. 4, lines 9-58. However, when a carbonizable organic powder, such as a mesophase pitch powder, is used, densities of from 1.5 g/cc to about 1.7 g/cc are achieved. *Id.*, at col. 4, lines 47-50. In method B, Klett uses, amongst other components, a carbonizable organic powder, such as a mesophase pitch powder, and produces preforms which have a density of greater than 1.1 g/cc. *Id.*, col 4, line 59 – col. 6, line 18. The carbonizable powder in Klett is selected from the group consisting of mesophase pitch powder, powdered isotropic pitch, a phenolic resin, and mixtures thereof. *Id.*, col. 5, lines 27-30.

Independent claim 1 recites “[a] rocket nozzle component comprising: a pre-preg material comprising a reinforcement impregnated with a thermosetting resin, the rocket nozzle component having a specific density ranging from approximately 1.00 g/ml to approximately 1.15 g/ml, wherein the rocket nozzle component is configured as at least a portion of a rocket nozzle.”

Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness of independent claim 1 as Herring and Klett do not teach or suggest all of the limitations of claim 1. Specifically, Herring and Klett do not teach or suggest the limitations of “a rocket nozzle component” and “wherein the rocket nozzle component is configured as at least a portion of a rocket nozzle.” The Examiner states that Herring “discloses a blast tube for rocket motors.” (See *Office Action* of April 11, 2008, page 3). However, Herring teaches phenolic

insulators for blast tubes of rocket motors which are positioned between the nozzle and propellant section of tactical rocket motors. Therefore, the blast tubes in Herring are not rocket nozzle components, nor are they configured as at least a portion of a rocket nozzle. Furthermore, the Examiner does not provide an articulated reason to support the assertion that Herring teaches a rocket nozzle component or a component that is configured as at least a portion of a rocket nozzle. Since Klett teaches aircraft braking system components, Klett does not cure the above-mentioned deficiencies in Herring. Therefore, Herring and Klett, alone or in combination, do not teach or suggest the above-mentioned limitations.

Furthermore, the Examiner has not provided a reason in the prior art, common knowledge, or the nature of the problem that would have prompted a person of ordinary skill in the relevant field to combine Herring and Klett in the manner claimed. The Examiner states that it “would have been obvious to one of ordinary skill in the art to use carbonizable powder in the Herring reference in order to obtain a density of 1.00 to 1.15 g/ml for a phenolic insulator for a rocket motor that has better performance.” *Id.* Additionally, the Examiner states that Herring “does disclose that the phenolic insulators have low density” and that the “lower density provides better char rates.” *Id.* However, Klett teaches a “method for making a densified carbon matrix fiber composite preform.” Klett, col. 2, lines 27-28. As such, Klett is concerned with producing preforms of increased density (densified). The carbonizable powder in Klett “is selected from the group consisting of mesophase pitch powder, powdered isotropic pitch, a phenolic resin, and mixtures thereof.” Klett, col. 5, lines 27-30. Klett further teaches that “when a mesophase pitch is used as a matrix precursor, densities of the final part are at least 1.5 g/cc and can reach as high as 1.7 g/cc.” Klett, col 4, lines 47-50. Therefore, Klett teaches away from combination with Herring because Klett teaches methods of making preforms of increased density while Herring’s phenolic insulators benefit from having a decreased density. Therefore, a person of ordinary skill in the art would not look to the density-increasing methods of Klett in order to form the low density phenolic insulators of Herring.

Since Herring and Klett fail to teach or suggest all the limitations of claim 1 and since no reason exists in the prior art, common knowledge, or the nature of the problem that would have prompted a person of ordinary skill in the relevant field to combine Herring and Klett, the applied references do not render claim 1 obvious. Accordingly, claim 1 is allowable.

Independent claim 13 is allowable for at least the same reasons as is claim 1.

The nonobviousness of independent claims 1 and 13 precludes a rejection of claims 2-6, 8, 11, 12, 14, and 15, which depend therefrom, because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03.

Therefore, the Applicants request withdrawal of the 35 U.S.C. § 103(a) obviousness rejection of claims 1-6, 8, and 11-15.

#### CONCLUSION

Claims 1-6, 8, and 11-15 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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